

REMARKS

The Final Official Action of September 22, 2003 has been carefully considered. Applicant appreciates the Examiner's thorough review of the application. The changes presented herewith, taken with the following remarks, are believed sufficient to place the present application in condition for allowance. Reconsideration is respectfully requested.

By the present amendment, claims 1, 8, 11, 20-22, 26, 27 and 29-31 have been amended. Support for the amendments can be found, for example, in the specification on page 6, lines 16-18. Claim 25 has been deleted without prejudice. Accordingly, claims 1-24 and 26-31 stand pending in this application and claims 2-5, 10, 11 and 13-19 are currently withdrawn from consideration. As set forth below, it is believed that claims 1-24 and 26-31 are in condition for allowance.

In the Official Action, the Examiner rejects claims 1, 6-9, 12 and 20-31 under 35 U.S.C. 102(a) as being clearly anticipated by U.S. Patent No. 5,993,297 to Hyatt et al. Applicant respectfully traverses this rejection for the reasons stated more fully below.

Claim 1 has been amended to require the tool to be at least partially formed from an abrasive material having an open cell porous structure. Claim 1 further requires a fluid delivery system that is operative to disperse fluid to contact the tool primarily at a location inboard from the outer surface and to deliver the fluid into the tool for transmission into and through the open cell porous structure of the tool to the workpiece interface.

Claim 22 has also been amended to require the tool to be at least partially formed from an abrasive material having an open cell porous structure. Claim 22 has also been amended such that the method steps include the steps of: dispersing fluid from the fluid

delivery system such that the fluid is delivered into the open cell porous structure of the tool after contacting the tool primarily at a contact location inboard from the outer surface of the tool; and rotating the tool about the rotational axis such that fluid is transmitted through the open cell porous structure of the tool to the workpiece interface.

Claim 27 has also been amended to require the tool to be at least partially formed from an abrasive material having an open cell porous structure. Claim 27 has also been amended such that the method steps include the steps of: dispersing fluid from the fluid delivery device such that the fluid contacts the tool primarily at a contact location inboard from the outer peripheral surface of the tool and is delivered into the open cell porous structure of the tool; rotating the tool about the rotational axis such that fluid flows through the open cell porous structure; machining the workpiece with the outer peripheral surface of the tool at a machining zone, wherein a controlled radial discharge of fluid from the open cell porous structure is provided at the machining zone; and modifying parameters of the fluid delivery device to compensate for changes in material characteristics of the tool in order to assist in maintaining proper dispersal of fluid from the open cell porous structure at the machining zone.

Hyatt et al. apparently fails to disclose a tool with an abrasive material having an open cell porous structure, as required by each of claims 1, 22 and 27. Hyatt et al. also apparently fails to disclose further limitations of claim 1 that require a fluid delivery system being operative to deliver fluid for transmission into and through the open cell porous structure. Hyatt et al. also apparently fails to disclose further limitations of each of claims 22 and 27 that each require dispersing fluid such that the fluid is delivered into the open cell porous

structure and rotating the tool about the rotational axis such that fluid flows or is transmitted through the open cell porous structure. Hyatt et al. also apparently fails to disclose the further limitations of claim 27 that requires providing a controlled radial discharge of fluid from the open cell porous structure at the machining zone and modifying parameters of the fluid delivery device to compensate for changes in material characteristics of the tool in order to assist in maintaining proper dispersal of fluid from the open cell porous structure at the machining zone.

Rather, Hyatt et al. discloses a grinding wheel (70) that includes a medium carbon steel, aluminum, cast iron, titanium, or other metal alloy (see column 8, lines 32-35). Apparently, only outer layers of the grinding wheel (70) include an abrasive grit. Indeed, as set forth in column 9, lines 12-15, the specification states that the grinding surface (78) of the wheel (70) comprises layers of abrasive grit that can be embedded in or plated on a portion of the radial face (75), (see also column 9, lines 15-28). Hyatt et al. discloses a plurality of guide channels (80) to allow fluid to travel through the grinding wheel (70). Hyatt et al. states that guide channels (80) and openings (82A, 82B and 82C) can be selectively sized, oriented and configured for assisting in optimal cleaning operations, for assisting in optimal cooling operations, or perpendicular to the radial face (75), (See column 9, lines 60-67). For example, Hyatt et al. discloses that angularly orienting the guide channels (80) can provide "enhanced cooling operations". (See column 10, lines 1-34).

Therefore, the claims require an abrasive material having an open cell porous structure that allow transmission of fluid through the nondiscrete passages inherently formed from the open cell nature of the porous structure. Hyatt et al., in contrast, apparently

discloses the necessity of including discrete "guide channels" to guide fluid to the appropriate location. The functional importance of discrete "guide channels" of Hyatt et al. teaches away from providing Hyatt et al. with an open cell porous structure as set forth in the claims of the instant application. Accordingly, Applicant respectfully requests allowance of claims 1, 22 and 27 and claims 2-21, 23, 24, 26 and 28-31 depending directly or indirectly therefrom.

Still further with respect to claim 27, it is respectfully set forth that Hyatt et al. does not teach or suggest modifying parameters of the fluid delivery device to compensate for changes in material characteristics of the tool in order to assist in maintaining proper dispersal of fluid from the open cell porous structure at the machining zone. For example, as set forth in Applicant's specification on page 11, lines 18-21, the contact location of the fluid may be adjusted to compensate for material wear of the abrasive material. Changing the contact location may be necessary since the indiscrete open cell porous structure inherently provides a resistance to fluid flowing therethrough. As the abrasive material including the open cell porous structure wears away, the overall fluid flow path is decreased, thereby changing the general location where the fluid exits the open cell porous structure. By changing the contact location, the general location where the fluid exits can be modified to compensate for wearing of material.

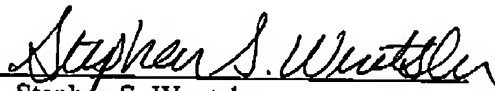
However, Hyatt et al. discloses discrete guide channels that apparently provide less resistance to fluid flow and therefore, any wearing away of abrasive material would not appear to have a significant effect on the general location where the fluid exits. Accordingly, Hyatt et al. apparently fails to provide any teaching or suggestion to modify the parameters of a fluid delivery device to compensate for changes in material characteristics of a tool in order

to assist in maintaining proper dispersal of fluid from an open cell porous structure as required by claim 27. Accordingly, for these additional reasons, Applicant respectfully request allowance of independent claim 27.

It is believed that the above represents a complete response to the Examiner's claim rejections, and therefore places the present application in condition for allowance. Applicant further requests consideration and allowance of claims 2-5, 10, 11 and 13-19 that were previously withdrawn by the Examiner since these claims depend directly or indirectly from allowable claim 1. Reconsideration and an early allowance of claims 1-24 and 26-31 is therefore respectfully requested.

Respectfully submitted,

By



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